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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,947	02/18/2004	Emmanuel Sedda	GRY-120US	2301

23122 7590 09/30/2005

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EXAMINER	
CHANG, CHING	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/780,947	SEDDA ET AL.	
	Examiner	Art Unit	
	Ching Chang	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the amendment filed on 08/03/2005. New claims 10-11 are added as requested.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. ***Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baier (DE '928) in view of Harms (US Patent 6,422,533).***

Baier discloses an internal combustion engine equipped with a electromechanical valve actuator (See Figs. 1, 3), comprising an electromagnet (6, 7) and a mobile magnetic plate (8, 28a, 28b) intended to come into contact with a part of the electromagnet, at least one groove (on 7 and above 27a; on 8 above 27b and 28b; on 6 and above 28a in Fig. 1)(on 7 and above 29 in Fig. 3) being located on the surface of the electromagnet which is the closest to the plate or on the plate to limit a contact surface between the plate and the electromagnet, wherein the contact surface area of the plate is smaller than a total surface area of the plate, wherein the electromagnet comprises a magnet (27a, 28a; 29) in a magnetic circuit; wherein the groove is located essentially in the center of the contact surface between the electromagnet and the plate; wherein the groove is located on an axis that is collinear with an axis (14) of translation of the plate; wherein the at least one groove includes a plurality of grooves (part of 6

and 7, part of 8) and each of the plurality of grooves located on one of the electromagnet and the plate, the grooves between arranged symmetrically in relation to an axis of translation of the plate (14); wherein the electromagnet comprises an E-shaped magnetic circuit, and the groove is located at an end of one of three essentially parallel branches that form the E-shaped magnetic circuit (See Figs. 1, 3); wherein when the electromagnet and the plate are in contact with one another, the groove maintains an air gap between each end branch of the magnetic circuit of the electromagnet and the plate (See Figs. 1, 3); wherein the magnet is located on the surface of one of the three essentially parallel branches of the E-shaped circuit, opposite the magnetic plate; further comprising a second magnet, wherein the first and second magnets are located on a surface of the E-shaped circuit, and the groove is located between the first and second magnets (See Figs. 1, 3).

Bair discloses the invention as recited above, however, fails to disclose at least one groove being filled with a stop.

The patent to Harms on the other hand, teaches that it is conventional in the high force solenoid valve art, to utilize mechanical stops 60 and 62 in the air gaps to prevent contact between the magnets 44 and 66 in the respective pole pieces 50 and 52.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the stops as taught by Harms, and filled the grooves in the Baier device with the said stops, since the use thereof would provide an improved electromechanical engine valve actuator, which has less energy consumption, and less operating noise.

3. ***Claims 1-4, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piaccabrino et al. (FR '497) in view of Harms (US Patent 6,422,533).***

Piaccabrino discloses an internal combustion engine equipped with a electromechanical valve actuator (See Fig. 1), comprising an electromagnet (36, 38, 42, 44) and a mobile magnetic plate (22, 40) intended to come into contact with a part of the electromagnet, at least one groove (on 36 and 42) being located on the surface of the electromagnet which is the closest to the plate or on the plate to limit a contact surface between the plate and the electromagnet, wherein the electromagnet comprises a magnet (part of 36 and 42) in a magnetic circuit, wherein the contact surface area of the plate is smaller than a total surface area of the plate; wherein the groove is located essentially in the center of the contact surface between the electromagnet and the plate; wherein the groove is located on an axis that is collinear with an axis of translation of the plate; wherein the at least one groove includes a plurality of grooves (part of 36 and 42) and each of the plurality of grooves located on one of the electromagnet and the plate, the stops between arranged symmetrically in relation to an axis of translation of the plate (See Fig. 1).

Piaccabrino discloses the invention as recited above, however, fails to disclose at least one groove being filled with a stop.

The patent to Harms on the other hand, teaches that it is conventional in the high force solenoid valve art, to utilize mechanical stops 60 and 62 in the air gaps to prevent contact between the magnets 44 and 66 in the respective pole pieces 50 and 52.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the stops as taught by Harms, and filled the grooves in the Piaccabrino device with the said stops, since the use thereof would provide an improved electromechanical engine valve actuator, which has less energy consumption, and less operating noise.

4. ***Claims 1, 3/1, 9/1, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pischinger et al. (US Patent 4,515,343) in view of Patel (US 4,533,890).***

Pischinger discloses discloses an internal combustion engine equipped with a electromechanical valve actuator (See Figs. 1-4, 8), comprising an electromagnet (1, 2) and a mobile plate (17) intended to come into contact with a part of the electromagnet, at least one stop (5, 6) being located on the surface of the electromagnet which is the closest to the plate or on the plate to limit a contact surface between the plate and the electromagnet, in a magnetic circuit, wherein the contact surface area of the plate is smaller than a total surface area of the plate; wherein the stop is located on an axis that is collinear with an axls of tanslation of the plate; wherein the stop comprises a material adapted to absorb energy.

Pischinger discloses the invention as recited above, however, fails to disclose the mobile plate being a mobile magnetic plate, and the electromagnet comprising a magnet.

The patent to Patel on the other hand, teaches that it is conventional in the permanent magnet solenoid actuator art, to utilize a mobile magnetic plate (28) between the electromagnets (12, 68; 14, 70) comprising a magnet (52, 48, 50, 54).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the mobile magnetic plate between the electromagnets comprising a magnet as taught by Patel in the Pischinger device, since the use thereof would provide an improved and energy efficient engine valve actuator.

Response to Arguments

5. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Ching Chang

THOMAS DENION
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TECHNOLOGY CENTER 3700